

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously presented) A motor driver including:

a current output driver that outputs a drive current fed to a direct-current motor; and
a gain switch circuit that switches a current/voltage gain for a value of the drive current
with respect to an input voltage;

the motor driver comprising:

n detection resistors connected in series with a coil of the direct-current motor;
n switches provided one for each of the n detection resistors, each switch having one end
thereof connected to an end of the corresponding detection resistor farther from the coil, and
having a predetermined direct-current voltage applied to another end thereof; and

n current detection amplifiers provided one for each of the n detection resistors, each
current detection amplifier detecting a voltage across the corresponding detection resistor and
feeding the detected voltage back to the gain switch circuit;

wherein turning on and off of the switches is controlled according to the current/voltage
gain switched by the gain switch circuit.

2. (Previously presented) A motor driver including:

a current output driver that outputs a drive current fed to a direct-current motor; and
a gain switch circuit that switches a current/voltage gain for a value of the drive current
with respect to an input voltage;

the motor driver comprising:

a first detection resistor having one end thereof connected to a coil constituting the direct-
current motor;

a second detection resistor having one end thereof connected to another end of the first detection resistor so as to be connected in series with the first detection resistor, the second detection resistor having a different resistance from the first detection resistor;

a first switch having one end thereof connected to a node between the other end of the first detection resistor and the one end of the second detection resistor, the first switch having a predetermined direct-current voltage applied to another end thereof;

a second switch having one end thereof connected to another end of the second detection resistor, the second switch having a predetermined voltage applied to another end thereof;

a first current detection amplifier that detects a voltage across the first detection resistor and feeds the detected voltage back to the gain switch circuit; and

a second current detection amplifier that detects a voltage across the second detection resistor and feeds the detected voltage back to the gain switch circuit;

wherein turning on and off of the first and second switches is controlled according to the current/voltage gain switched by the gain switch circuit.

3. (Previously presented) The motor driver of claim 2,

wherein, when the first switch is turned on, the second switch is turned off, and the gain switch circuit corrects the input voltage based on the voltage fed back from the first current detection amplifier, and

wherein, when the second switch is turned on, the first switch is turned off, and the gain switch circuit corrects the input voltage based on the voltage fed back from the second current detection amplifier.

4. (Previously presented) The motor driver of claim 3,

wherein the gain switch circuit comprises:

a first resistor whose resistance is switchable, the first resistor receiving the input voltage at one end thereof and having another end thereof connected to an input side of the current output driver;

a second resistor receiving at one end thereof an output of the first current detection amplifier;

a third resistor receiving at one end thereof an output of the second current detection amplifier;

a third switch having three contacts, the third switch having one contact thereof connected to a node between the first resistor and the input side of the current output driver, the third switch having the other two contacts thereof connected respectively to another end of the second resistor and another end of the third resistor.

5. (Previously presented) The motor driver of claim 4,

wherein, when the first switch is turned on, the third switch electrically connects the second resistor to the input side of the current output driver; and

wherein, when the second switch is turned on, the third switch electrically connects the third resistor to the input side of the current output driver.

6. (Previously presented) The motor driver of claim 5,

wherein the following relationship is fulfilled:

$$R2a / (K1 \times RS1) = R2b / (K2 \times RS2)$$

where RS1 and RS2 represent resistances of the first and second detection resistors, respectively; R2a and R2b represent resistances of the second and third resistors, respectively; and K1 and K2 represent gains of the first and second current detection amplifiers, respectively.

7. (Previously presented) The motor driver of claim 4,

wherein the following relationship is fulfilled:

$$R2a / (K1 \times RS1) = R2b / (K2 \times RS2)$$

where RS1 and RS2 represent resistances of the first and second detection resistors, respectively; R2a and R2b represent resistances of the second and third resistors, respectively; and K1 and K2 represent gains of the first and second current detection amplifiers, respectively.

8. (Previously presented) The motor driver of claim 2,

wherein the gain switch circuit comprises:

a first resistor whose resistance is switchable, the first resistor receiving the input voltage at one end thereof and having another end thereof connected to an input side of the current output driver;

a second resistor receiving at one end thereof an output of the first current detection amplifier;

a third resistor receiving at one end thereof an output of the second current detection amplifier;

a third switch having three contacts, the third switch having one contact thereof connected to a node between the first resistor and the input side of the current output driver, the third switch having the other two contacts thereof connected respectively to another end of the second resistor and another end of the third resistor.

9. (Previously presented) The motor driver of claim 8,

wherein, when the first switch is turned on, the third switch electrically connects the second resistor to the input side of the current output driver; and

wherein, when the second switch is turned on, the third switch electrically connects the third resistor to the input side of the current output driver.

10. (Previously presented) The motor driver of claim 8,

wherein the following relationship is fulfilled:

$$R2a / (K1 \times RS1) = R2b / (K2 \times RS2)$$

where RS1 and RS2 represent resistances of the first and second detection resistors, respectively; R2a and R2b represent resistances of the second and third resistors, respectively; and K1 and K2 represent gains of the first and second current detection amplifiers, respectively.

11. (Previously presented) The motor driver of claim 2,

wherein the current output driver, the gain switch circuit, the first and second switches, and the first and second current detection amplifiers are built as a single semiconductor integrated circuit device.

12. (Currently amended) A magnetic disk apparatus comprising:
the motor driver of claim 1 ~~one of claims 1 to 11~~;
the direct-current motor whose driving is controlled by the motor driver; and
a magnetic head that is moved in a direction of a radius of a magnetic disk by being fed
with power from the direct-current motor.

13. (New) A magnetic disk apparatus comprising:
the motor driver of claim 2;
the direct-current motor whose driving is controlled by the motor driver; and a magnetic
head that is moved in a direction of a radius of a magnetic disk by being fed with power
from the direct-current motor.